

Michelle W. Voss

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EDUCATIONAL AND PROFESSIONAL HISTORY

Education

- 2008-2011 Ph.D., Psychology, Brain & Cognition
University of Illinois at Urbana-Champaign
- 2005-2008 M.A., Psychology, Brain & Cognition
University of Illinois at Urbana-Champaign
- 1999-2004 B.S. (Honors, Summa cum Laude) Psychology
University of Illinois at Urbana-Champaign

Positions

- 2012- Assistant Professor, Department of Psychology
The University of Iowa
- 2011-2012 Postdoctoral Research Associate
The Beckman Institute for Advanced Science and Technology
University of Illinois at Urbana-Champaign
- 2005-2011 Research Assistant, Department of Psychology
University of Illinois at Urbana-Champaign
- 2004-2005 Lab Coordinator, Lifelong Brain and Cognition Laboratory
University of Illinois at Urbana-Champaign

Honors and awards

- 2010 Philips Travel Award
Second Biennial International Conference on Resting-State Functional
Brain Connectivity held in Milwaukee, WI, (\$500)

- 2010 Quinn Memorial Exchange Fellowship
Scholarship from the Department of Psychology at the University of British Columbia for research collaboration with Dr. Teresa Liu-Ambrose (Dept. of Physical Therapy) and Dr. Todd Handy (Dept. of Psychology)
- 2009 Beckman Institute Graduate Fellowship
One year of support as a graduate fellow for proposed research agenda
- 2009 Paul D. Doolen Scholarship for the Study of Aging
\$5000 scholarship for excellence in aging research
- 2007-2009 NIMH cognitive psychophysiology training fellowship
Two years of support for research fellowship
- 2006 NCAA graduate student research grant
\$5000 grant for proposed research project that resulted in a peer-reviewed journal article
- 2004 Janet Tritsch Memorial Award in Psychology, for Honors Thesis
Awarded annually to the undergraduate student in psychology with the best research paper
- 2004 Bronze Tablet recipient
Awarded to those in the top 3% of their college graduating class
- 2003 Big Ten Medal of Honor
Awarded annually at each conference school to one male and one female senior student-athlete who have demonstrated proficiency in scholarship, community service, and athletics
- 2003 Outstanding Scholar-Athlete Award
Awarded to the varsity athlete with the highest grade point average in each class of school
- 1999-2004 Dean's List, University of Illinois at Urbana-Champaign

Professional affiliations

Organization for Human Brain Mapping
Cognitive Neuroscience Society
The National Society of Collegiate Scholars

SCHOLARSHIP

Publications

Contribution: * Major **Secondary ***Equal ****Minor

†Graduate student first author from HBC lab, ††Undergraduate student first author from HBC lab

Link to: <https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/45988669/?sort=date&direction=descending>

Articles and book chapters: Refereed, in print, press, or accepted

- *†Clark, R., Tahan, A.C., Watson, P.D., Severson, J., Cohen, N.J., **Voss, M.W.** (accepted). Aging affects spatial reconstruction more than spatial pattern separation performance even after extended practice. *Hippocampus*.
- **DuBose, L., **Voss, M.W.**, Weng, T.B., Kent, J., Dubishar, K., Lane-Cordova, A., Sigurdsson, G., Schmid, P., Barlow, P., Pierce, G. (in press). Carotid β -stiffness index is associated with slower processing speed but not working memory or white matter integrity in healthy middle-aged/older adults. *Journal of Applied Physiology*.
- *†Rigon, A., **Voss, M.W.**, Turkstra, L.S., Mutlu, B., Duff, M.C. (in press). Relationship between individual differences in functional connectivity and facial emotion recognition abilities in adults with traumatic brain injury. *NeuroImage: Clinical*.
- *†Clark, R., Wendel, C., **Voss, M.W.** (in press). Physical Activity and Cognitive Training: Impact on Hippocampal Structure and Function. In D.E. Hannula & M.C. Duff (Eds.) *The Hippocampus from Cells to Systems: Structure, Connectivity, and Functional Contributions to Memory and Flexible Cognition*. New York: Springer
- *†Weng, T.B., Pierce, G.L., Darling, W.G., Falk, D., Magnotta, V.A., **Voss, M.W.** (in press). The acute effects of exercise on the synchrony of functional networks of the aging human brain. *Brain Plasticity*.
- ****Fanning, J., Porter, G., Awick, E.A., Ehlers, D.K., Roberts, S.A., Cooke, G., Burzynska, A.Z., **Voss, M.W.**, Kramer, A.F., McAuley, E. (in press). Replacing sedentary time with sleep, light, or moderate-to-vigorous physical activity: effects on self-regulation and executive functioning. *Journal of Behavioral Medicine*.
- ***Voss, M.W.** (in press). The Benefits of Physical Activity on Brain Structure and Function in Healthy Aging and Age-Related Neurological Disease. Invited book chapter to appear in *Wiley Handbook of the Aging Mind and Brain*. Edited by: Dr. Matthew Rizzo and Dr. Steven Anderson.

- *†Rigon, A., **Voss, M.W.**, Turkstra, L.S., Mutlu, B., Duff, M.C. (2016). Frontal and temporal structural connectivity is associated with social communication impairment following traumatic brain injury. *Journal of the International Neuropsychological Society*, 22(7), 705-716.
- *†Rigon, A., Duff, M.C., **Voss, M.W.** (2016). Structural and functional neural correlates of self-reported attachment in healthy adults: evidence for an amygdalar involvement. *Brain Imaging and Behavior*, 10(4), 941-952.
- **Sutterer, M.J., Bruss, J., Boes, A.D., **Voss, M.W.**, Bechara, A., Tranel, D. (2016). Canceled connections: Lesion-derived network mapping helps explain differences in performance on a complex decision-making task. *Cortex*, 78, 31-43.
- **Band, G.P.H., Basak, C., Slagter, H.A., **Voss, M.W.** (2016). Towards a mechanistic view on game-guided learning. Editorial summary on research topic “Effects of game and game-like training on neurocognitive plasticity,” *Frontiers in Human Neuroscience*, 10:123.
- ***Voss, M.W.**, Weng, T.B., Burzynska, A.Z., Wong, C.N., Cooke, G.E., Clark, R., Fanning, J., Awick, E., Gothe, N.P., Olson, E.A., McAuley, E., Kramer, A.F. (2016). Fitness, but not physical activity, is related to functional integrity of brain networks associated with aging. *NeuroImage*, 131, 113-125.
- **Oberlin, L.E., Verstynen, T.D., Burzynska, A.Z., **Voss, M.W.**, Prakash, R.S., Chaddock-Heyman, L., Wong, C., Fanning, J., Awick, E., Gothe, N., Phillips, S.M., Mailey, E., Ehlers, D., Olson, E., Wojcicki, T., McAuley, E., Kramer, A.F., Erickson, K.I. (2016). White matter microstructure mediates the relationship between cardiorespiratory fitness and spatial working memory in older adults. *NeuroImage*, 131, 91-101.
- ****Hsu, C.L., Best, J.R., Chiu, B.K., Nagamatsu, L.S., **Voss, M.W.**, Handy, T.C., Bolandzadeh, N., Liu-Ambrose, T. (2016). Structural neural correlates of impaired mobility and subsequent decline in executive functions: a 12-month prospective study. *Experimental Gerontology*, 80, 27-35.
- ****Nagamatsu, L.S., Hsu, C.L., **Voss, M.W.**, Chan, A., Bolandzadeh, N., Handy, T.C., Graf, P., Beattie, B.L., Liu-Ambrose, T. (2016). The neurocognitive basis for impaired dual-task performance in senior fallers. *Frontiers in Aging Neuroscience*, 8:20.
- ***Voss, M.W.** (2016). The chronic exercise-cognition interaction: fMRI research. Invited book chapter in *Exercise-Cognition Interaction: Neuroscience Perspectives*. Edited by Dr. Terry McMorris.
- *†Clark, R.C., Freedberg, M., Hazeltine, E., **Voss, M.W.** (2015). Are there age-related differences in the ability to learn configural responses? *PLoS ONE*, 10(8), e0137260.
- **Burzynska, A.Z., Wong, C.N., Chaddock-Heyman, L., Olson, E.A., Gothe, N.P., Knecht, A., **Voss, M.W.**, McAuley, E., Kramer, A.F. (2015). White matter integrity, hippocampal volume, and cognitive performance of a world-famous nonagenarian track-and-field athlete. *Neurocase*. Epub ahead of print.

- *†Rigon, A., Duff, M.C., McAuley, E., Kramer, A.F., **Voss, M.W.** (2015). Is traumatic brain injury associated with reduced inter-hemispheric functional connectivity? A study of large-scale resting state networks following traumatic brain injury. *Journal of Neurotrauma*. Epub ahead of print.
- **Chun, L.H., **Voss, M.W.**, Best, J.R., Handy, T.C., Madden, K., Bolandzadeh, N., Liu-Ambrose, T. (2015). Elevated Body Mass Index and Maintenance of Cognitive Function in Late Life: Exploring Underlying Neural Mechanisms. *Frontiers in Aging Neuroscience*.
- **Wong, C.N., Chaddock-Heyman, L., **Voss, M.W.**, Burzynska, A., Basak, C., Erickson, K.I., Prakash, R.S., Szabo-Reed, A., Phillips, S.M., Wojcicki, T., Mailey, E.L., McAuley, E., Kramer, A.F. (2015). Brain activation during dual-task processing is associated with cardiorespiratory fitness and performance in older adults. *Frontiers in Aging Neuroscience*.
- **Burzynska, A.Z., Wong, C.N., **Voss, M.W.**, Cooke, G.E., Gothe, N.P., Fanning, J., McAuley, E., Kramer, A.F. (2015). Physical Activity Is Linked to Greater Moment-To-Moment Variability in Spontaneous Brain Activity in Older Adults, *PLoS ONE*, 10(8): e0134819
- **Burzynska, A.Z., Wong, C.N., **Voss, M.W.**, Cooke, G.E., McAuley, E., Kramer, A.F. (2015). White matter integrity supports BOLD signal variability and cognitive performance in the aging human brain. *PLoS ONE*, 10(4), e0120315.
- *†Weng, TB & **Voss, MW.** (2015). Active Voice: Aerobic exercise targets specific brain systems. Invited highlighted commentary for the American College of Sports Medicine Bulletin.
- *†Weng, T.B., Pierce, G.L., Darling, W.G., **Voss, M.W.** (2015). Differential Effects of Acute Exercise on Distinct Aspects of Executive Function. *Medicine & Science in Sports & Exercise*, 47(7), 1460-1469.
- *Prakash, R.S., **Voss, M.W.**, Erickson, K.I., Kramer, A.F. (2015). Physical Activity and Cognitive Vitality. *Annual Review of Psychology*, 66, 769-797.
- ****Erickson, K.I., Leckie, R., Weinstein, A., Radchenkova, P., Sutton, B., Prakash, R., **Voss, M.W.**, Chaddock, L., McAuley, E., Kramer, A.F. (2015). Education Mitigates Age-Related Decline in N-Acetylaspartate Levels. *Brain and Behavior*, 5(3), e00311.
- ****Lee, H., Boot, W.R., Baniqued, P., **Voss, M.W.**, Prakash, R.S., Basak, C., Kramer, A.F. (2015). The Relationship between Intelligence and Training Gains Is Moderated by Training Strategy. *PLoS ONE*. 10(4):e0123259.
- **Monti, J.M., Cooke, G.E., Watson, P.D., **Voss, M.W.**, Kramer, A.F., Cohen, N.J. (2015). Relating Hippocampus to Relational Memory Processing across Domains and Delays. *Journal of Cognitive Neuroscience*, 27(2), 234-45.
- ****Leckie, L.R., Oberlin, L.E., **Voss, M.W.**, Prakash, R.S., Szabo-Reed, A., Chaddock-Heyman, L., Phillips, S.M., Gothe, N.P., Mailey, E., Vieira-Potter, V.J., Martin, S.A.,

- Pence, B.D., Lin, M., Parasuraman, R., Greenwood, P.M., Fryxell, K.J., Woods, J., McAuley, E., Kramer, A.F., Erickson, K.I. (2014). BDNF mediates improvements in executive function following a 1-year exercise intervention. *Frontiers in Human Neuroscience*, 8:985. doi: 10.3389/fnhum.2014.00985
- ***Voss, M.W.** Brain. Encyclopedia of Sport and Exercise Psychology. (2014). Editors Robert Charles Eklund and Gershon Tenenbaum. [SAGE Publications](#).
- **Burzynska A.Z., Chaddock-Heyman L., **Voss M.W.**, Wong C.N., Gothe N.P., Olson E.A., Knecht A., Lewis A, Monti J, Cooke G, Wojcicki T.R., Fanning J, Chung H.D., Awick E, McAuley E, and Kramer A.F. (2014). Physical activity and cardiorespiratory fitness are beneficial for aging white matter. *PLoS ONE* 9(9): e107413.
- ****Chaddock-Heyman, L., Erickson, K.I., Holtrop, J.L., **Voss, M.W.**, Pontifex, M.B., Raine, L.B., Hillman, C.H., Kramer, A.F. (2014). Aerobic fitness is associated with greater white matter integrity in children, *Frontiers in Human Neuroscience*, 8:584. doi: 10.3389/fnhum.2014.00584.
- ****Uc,E., Doerschug, K, Magnotta,V.A., Dawson,J.D., Thomsen, T., Kline, J.N., Rizzo, M., Newman,S.R., Mehta, S.H., Grabowski, T.J., Bruss, J.E., Blanchette, D.R., Anderson, S., **Voss, M.W.**, Kramer, A.F., Darling, W.G. (2014). A Phase I/II, Randomized Trial of Aerobic Exercise in Parkinson Disease in Community Setting. *Neurology*, 83(5), 413-425.
- **Nagamatsu, L.S., Flicker, L., Kramer, A.F., **Voss, M.W.**, Erickson, K.I., Hsu, Chun Liang, Liu-Ambrose, T. (2014). Exercise is Medicine, for the body and the brain. *British Journal of Sports Medicine*, 48(12), 943-944.
- **Nikolaidis, A., **Voss, M.W.**, Lee, H., Vo, L., Kramer, A.F. (2014). Parietal plasticity after training with a complex video game is associated with individual differences in improvements in an untrained working memory task. *Frontiers in Human Neuroscience*, 8: 169. doi: 10.3389/fnhum.2014.00169.
- **Hsu, Chun Liang, **Voss, M.W.**, Handy, T., Davis, J., Nagamatsu, L., Chan, A., Sharma, D., Liu-Ambrose, T. (2014). Disruptions in brain networks of older fallers are associated with subsequent cognitive decline: A 12-month prospective study. *PLoS ONE*, 3(9): e93673.
- ***Voss, M.W.**, Carr, L.J., Clark, R., Weng, T.B. (2014). Revenge of the "sit" II: Does lifestyle impact neuronal and cognitive health through distinct mechanisms associated with sedentary behavior and physical activity. *Mental Health and Physical Activity (MENPA)*, 7(1), 9-24.
- **Baniqued, P.L., Kranz, M.B., **Voss, M.W.**, Lee, H., Cosman, J.D., Severson J, Kramer AF (2014) Cognitive training with casual video games: points to consider. *Frontiers in Psychology*. 4:1010. doi: 10.3389/fpsyg.2013.01010

- **Neider, M.B., Ang, C.W., **Voss, M.W.**, Carbonari, R., Kramer, A.F. (2013) Training and Transfer of Training in Rapid Visual Search for Camouflaged Targets. *PLoS ONE* 8(12): e83885. doi:10.1371/journal.pone.0083885
- ***Voss, M.W.**, Wong, C.N., Baniqued, P.L., Burdette, J.H., Erickson, K.I., et al. (2013) Aging Brain from a Network Science Perspective: Something to Be Positive About? *PLoS ONE* 8(11): e78345. doi:10.1371/journal.pone.0078345
- ***Voss, M.W.**, Vivar, C., Kramer, A.F., van Praag, H. (2013) Bridging animal and human models of exercise-induced brain plasticity. *Trends in Cognitive Sciences*, 17(10), 525-544.
- **Monti, J.M., **Voss, M.W.**, Pence, A., McAuley, E., Kramer, A.F., & Cohen, N.J. (2013). History of mild traumatic brain injury associated with reduced neural activity and memory impairment later in life. *Frontiers in Aging Neuroscience*, 5:41.
- ***Voss, M.W.**, Heo, S., Prakash, R.S., Erickson, K.I., Alves, H., Chaddock, L., Szabo, A.N., Mailey, E.L., Wójcicki, T.R., White, S.M., Gothe, N., McAuley, E., Sutton, B.P., & Kramer, A.F. (2013). The influence of aerobic fitness on cerebral white matter integrity and cognitive function in older adults: Results of a one-year exercise intervention. *Human Brain Mapping*, 34(11), 2972-85.
- **Nagamatsu, L. S., Chan, A., Davis, J. C., Beattie, B. L., Graf, P., **Voss, M. W.**, ... & Liu-Ambrose, T. (2013). Physical Activity Improves Verbal and Spatial Memory in Older Adults with Probable Mild Cognitive Impairment: A 6-Month Randomized Controlled Trial. *Journal of Aging Research*, 861893
- **Chaddock-Heyman, L., Erickson, K. I., **Voss, M. W.**, Knecht, A. M., Pontifex, M. B., Castelli, D. M., ... & Kramer, A. F. (2013). The effects of physical activity on functional MRI activation associated with cognitive control in children: a randomized controlled intervention. *Frontiers in Human Neuroscience*, 7:72.
- **Chaddock-Heyman, L., Erickson, K. I., **Voss, M. W.**, Powers, J. P., Knecht, A. M., Pontifex, M. B., Drollette, E. S., Moore, R. D., Raine, L. B., Scudder, M. R., Hillman, C. H., & Kramer, A. F. (2013). White matter microstructure is associated with cognitive control in children. *Biological Psychology*, 94, 109–115.
- **Alves, H., **Voss, M.W.**, Boot, W.R., Deslandes, A., Cossich, V., Salles, J.I., & Kramer, A.F. (2013). Perceptual-cognitive expertise in elite volleyball players. *Frontiers in Movement Science and Sport Psychology*. *Frontiers in Psychology*, 4:36.
- ***Voss, M.W.**, Erickson, K.I., Prakash, R.S., Chaddock, L.C., Kim, J.S., Alves, H., Szabo, A., White, S.M., Wójcicki, T.R., Mailey, E.L., Olson, E.A., Gothe, N., Potter, V.V., Martin, S.A., Pence, B.D., Cook, M.D., Woods, J.A., McAuley, E., & Kramer, A.F. (2013). Neurobiological markers of exercise-related brain plasticity in older adults. *Brain, Behavior, and Immunity*, 28, 90-9.
- **Baniqued, P.L., Lee, H., **Voss, M.W.**, Basak, C., Cosman, J.D., DeSouza, S., Severson, J., Salthouse, T.A., Kramer, A.F. (2013). Selling points: What cognitive abilities are tapped by casual video games? *Acta Psychologica*, 142(1), 74-86.

- ***Voss, M.W.** & Erickson, K.I. (2013). Exercise effects on brain and cognition in older adults. Chapter in, "Routledge Handbook of Physical Activity and Mental Health." Edited by Jennifer L. Etnier and Panteleimon Ekkekakis.
- ***Prakash, R.S., **Voss, M.W.**, & Kramer, A.F. (2012). Physical activity effects on brain and behavior. Chapter in, "Principles of Frontal Lobe Functions: Second Edition." Edited by Donald T. Stuss and Robert T. Knight. Oxford University Press.
- **Nagamatsu, L.S., Handy, T.C., Hsu, L., **Voss, M.W.**, Liu-Ambrose, T. (2012). Resistance training promotes cognitive performance and functional plasticity in seniors with probable mild cognitive impairment: A 6-month randomized controlled trial. *Archives of Internal Medicine*, 172(8), 666-668.
- **Lee, H., **Voss, M.W.**, Prakash, R.S., Boot, W.R., Vo, L.T.K., Basak, C., VanPatter, M., Gratton, G., Fabiani, M., & Kramer, A.F. (2012). Videogame training strategy-induced change in brain function during a complex visuomotor task. *Behavioural Brain Research*, 232(2), 348-357.
- **Prakash, R.S., DeLeon, A., Mourany, L., Lee, H., **Voss, M.W.**, Boot, W.R., Basak, C., Fabiani, M., Gratton, G., & Kramer, A.F. (2012). Examining neural correlates of skill acquisition in a complex videogame training program. *Frontiers in Human Neuroscience*, 6:115.
- **Liu-Ambrose, T., Nagamatsu, L.S., **Voss, M.W.**, Khan, K., & Handy, T.C. (2012). Resistance training and functional plasticity of the aging cortex. *Neurobiology of Aging*, 33(8), 1690-1698.
- **Weinstein, A.M., **Voss, M.W.**, Prakash, R.S., Chaddock, L., Szabo, A., White, S.M, Wojcicki, T.R., Mailey, E., McAuley, E., Kramer, A.F., Erickson, K.I. (2012). The association between aerobic fitness and executive function is mediated by prefrontal cortex volume. *Brain, Behavior and Immunity*, 26(5), 811-819.
- ****Verstynen, T. D., Lynch, B., Miller, D. L., **Voss, M. W.**, Prakash, R. S., Chaddock, L., Basak, C., Szabo, A., Olson, E.A., Wojcicki, T.R., Fanning, J., Gothe, N.P., McAuley, E., Kramer, A.F., & Erickson, K. I. (2012). Caudate Nucleus Volume Mediates the Link between Cardiorespiratory Fitness and Cognitive Flexibility in Older Adults. *Journal of Aging Research*, doi:10.1155/2012/939285.
- **Prakash, R.S., Heo, S., **Voss, M.W.**, Patterson, B., & Kramer, A.F. (2012). Age-related differences in cortical recruitment and suppression: Implications for cognitive performance. *Behavioral Brain Research*, 230(1), 192-200.
- ****Lee, H., Boot, W.R., Basak, C., Erickson, K.I., Neider, M., Simons, D.J., Fabiani, M., Gratton, G., **Voss, M.W.**, Prakash, R.S., Low, K.A., & Kramer, A.F. (2012). Effective training of complex tasks: Strategy, individual differences, retention, transfer of training, and predictors of individual differences in learning. *Acta Psychologica*, 139(1), 146-58.

- **Erickson, K.I., Weinstein, A.M., Sutton, B.P., Prakash, R.S., **Voss, M.W.**, Chaddock, L.C., Szabo, A., Mailey, E., White, S.M., Wójcicki, T.R., McAuley, E., & Kramer, A.F. (2012). Beyond vascularization: Effects of aerobic fitness on N-Acetylaspartate and memory. *Brain and Behavior*, 1, 32-41.
- **Chaddock, L., Erickson, K.I., Prakash, R.S., **Voss, M.W.**, VanPatter, M., Pontifex, M.B., Hillman, C.H., & Kramer, A.F. (2012). A functional MRI investigation of the association between childhood aerobic fitness and neurocognitive control. *Biological Psychology*, 89(1), 260-8.
- ***Voss, M.W.**, Prakash, R.S., Erickson, K.I., Boot, W.R., Basak, C., Neider, M.B., Simons, D.J., Fabiani, M., Gratton, G., & Kramer, A.F. (2012). Effects of training strategies implemented in a complex videogame on functional connectivity of attentional networks. *NeuroImage*, 59(1), 138-148.
- **Chaddock, L., **Voss, M.W.**, & Kramer, A.F. (2012). Physical activity and fitness effects on cognition and brain health in children and older adults. *Kinesiology Review*, 1, 37-45.
- **Basak, C., **Voss, M.W.**, Erickson, K.I., Boot, W.R., & Kramer, A.F. (2011). Regional differences in brain volume predict the acquisition of skill in a complex real-time strategy videogame. *Brain and Cognition*, 76(3), 407-14.
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- ***Voss, M.W.**, Nagamatsu, L.S., Liu-Ambrose, T., & Kramer, A.F. (2011). Exercise, Brain, and Cognition Across the Lifespan. *Journal of Applied Physiology*, 111(5), 1505-1513.
- **Wan, X., **Voss, M.W.** & Lleras, A. (2011). Age-related effects in inter-trial inhibition of attention. *Aging, Neuropsychology and Cognition*, 18(5), 562-76.
- **McAuley, E.M., Szabo, A.N., Mailey, E.L., Erickson, K.I., **Voss, M.W.**, White, S.M., Wójcicki, T.R., Gothe, N., Olson, E.A., Mullen, S.P., & Kramer, A.F. (2011). Non-exercise estimated cardiorespiratory fitness: Associations with brain structure, cognition, and memory complaints in older adults. *Mental Health and Physical Activity*, 4(1), 5-11.
- **Szabo, A.N., McAuley, E.M., Erickson, K.I., **Voss, M.W.**, Prakash, R.S., Mailey, E.L., Wójcicki, T.R., White, S.M., Gothe, N., Olson, E.A., & Kramer, A.F. (2011). Cardiorespiratory fitness, hippocampal volume and frequency of forgetting in older adults. *Neuropsychology*, 25(5), 545-553.
- **Chaddock, L., Neider, M.B., **Voss, M.W.**, Gaspar, J.G., & Kramer, A.F. (2011). Do athletes excel at everyday tasks? *Medicine & Science in Sports & Exercise*, 43(10), 1920-6.
- **Nagamatsu, L.S., **Voss, M.W.**, Neider, M., Gaspar, J., Handy, T.C., Kramer, A.F., & Liu-Ambrose, T.Y.L. (2011). Increased cognitive load leads to impaired mobility decisions in

- seniors at risk for falls: A virtual reality experiment. *Psychology and Aging*, 26(2), 253-259.
- ***Voss, M.W.**, Chaddock, L., Kim, J.S., VanPatter, M., Pontifex, M.B., Raine, L.B., Cohen, N.J., Hillman, C.H., & Kramer, A.F. (2011). Aerobic fitness is associated with greater efficiency of the network underlying cognitive control in preadolescent children. *Neuroscience*, 199, 166-76.
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- ****Wu, C.-T., Pontifex, M. B., Raine, L. B., Chaddock, L., **Voss, M. W.**, Kramer, A. F., & Hillman, C. H. (2011). Aerobic fitness and response variability in preadolescent children performing a cognitive control task. *Neuropsychology*, 25, 333-341.
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- **Heo, S., Prakash, R.S., **Voss, M.**, Erickson, K.I., Ouyang, C., Sutton, B.P., & Kramer, A.F. (2010). Resting hippocampal blood flow, spatial memory and aging. *Brain Research*, 1315, 119-127.
- **Erickson, K.I., **Voss, M.W.**, Prakash, R.S., Chaddock, L., & Kramer, A.F. (2010). A cross-sectional study of hormone treatment and hippocampal volume in postmenopausal women: Evidence for a limited window of opportunity. *Neuropsychology*, 24, 68-76.
- ***Voss, M.W.**, Kramer, A.F., Basak, C., Prakash, R.S., & Roberts, B. (2010). Are expert athletes “expert” in the cognitive laboratory? A meta-analytic review of basic attention and perception and sport expertise. *Applied Cognitive Psychology*, 24(6), 812-826.
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- **Erickson, K.I., Prakash, R.S., **Voss, M.W.**, Chaddock, L., Hu, L., Morris, K.S., White, S.M., Wojcicki, T.R., McAuley, E. & Kramer, A.F. (2009). Aerobic fitness is associated with

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- ***Voss, M.W.**, Erickson, K.I., Chaddock, L., Prakash, R.S., Colcombe, S.J., Morris, K.S., Doerksen, S., Hu, L., McAuley, E., & Kramer, A.F. (2008). Dedifferentiation in the visual cortex: an fMRI investigation of individual differences in older adults. *Brain Research*, 1244, 121-131.
- **Basak, C., Boot, W.R., **Voss, M.W.**, & Kramer, A.F. (2008). Can training in a real-time strategy videogame attenuate cognitive decline in older adults? *Psychology & Aging*, 23(4), 765-777.
- **Erickson, K.I., Kim, J.S., Suever, B.L., **Voss, M.W.**, Francis, B.M., & Kramer, A.F. (2008). Genetic contributions to age-related decline in executive function: a 10-year longitudinal study of COMT and BDNF polymorphisms. *Frontiers in Human Neuroscience*, 2, 11.
- ****Prakash, R.S., Snook, E.M., Erickson, K.I., Colcombe, S.J., **Voss, M.W.**, Motl, R.W., & Kramer, A.F. (2008). Cardiorespiratory fitness: A predictor of cortical plasticity in multiple sclerosis. *NeuroImage*, 14(9), 1250-61.
- ****Bogg, T., **Voss, M.W.**, Wood, D., & Roberts, B.W. (2008). A hierarchical investigation of personality and behavior: Testing five-Factor and neo-Socioanalytic models of health-related outcomes. *Journal of Research in Personality*, 42, 183-207.
- ****Roberts, B. W., Harms, P. D., Smith, J., Wood, D., & **Webb, M.** (2005). Methods in personality psychology. In Eid, M., & Diener, E. (Eds.). *Handbook of Psychological Assessment: A Multimethod Perspective*. Washington, D. C.: American Psychological Association.

Selected Talks from Jan 2012-present

2017

Physical exercise to improve hippocampal connectivity in older adults. To be presented as part of symposia entitled “Protective effects of exercise in old age: Mechanisms explored” at the Psychoneuroimmunology Research Society in Galveston, TX, June 7-10.

Effect of physical activity and exercise on cognitive function. To be presented as part of symposium on brain and vascular health at the North American Artery Society in Chicago, IL, May 19.

Physical activity, cognition, and brain health: Moving for a healthier brain and mind. Presented at Experimental Biology in ACSM sponsored symposium on “A roadmap for the future of exercise science: key research directions” at Chicago, IL. April 23rd

2016

Bridging acute and long-term effects of exercise on changes in functional connectivity and cognitive performance in aging adults. Presented as platform presentation at the 5th Bi-Annual Resting State Conference, Vienna, Austria. September 21st.

Physical exercise to improve hippocampal connectivity and learning in older adults. Neurology Grand Rounds at the University of Iowa, August 23rd.

Investigating the relationships between physical activity and fitness with brain health in older adults. Presented at International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation. Alberta, Canada. May 24-27.

Bridging acute and long-term effects of exercise on changes in functional connectivity and cognitive performance in aging adults. Presented at Experimental Biology, San Diego, CA. April 4th

Investigating the relationships between physical activity, exercise, and fitness with functional brain health in older adults. Presented at the International Neuropsychological Society Conference. Boston, MA, February 6th.

Investigating the relationships between physical activity and fitness with functional brain health in older adults. Presented at the Park City Winter Conference on the Neurobiology of Learning and Memory, January 7th.

2015

Sparkling plasticity in the aging brain with physical activity and exercise, presented at the Bi-annual ABMI symposium, April 1st.

Sparkling plasticity in the aging brain with physical activity and exercise, presented at the Neuroscience seminar series at the University of Arkansas. January 16th.

2014

Secondary Outcomes: Biomarkers (imaging, blood, electrophysiology, tissue). Invited collaborative talk with Dr. Marcas Bamman (UAB) at workshop on developing a multi-center exercise intervention for Parkinson's Disease, lead by Dr. Ergun Uc (University of Iowa). Chicago, IL, December 6th.

Secondary Outcomes: Cognitive, Behavioral, and Quality of Life. Invited collaborative talk with Dr. Lisa Shulman (University of Maryland) at workshop on developing a multi-center exercise intervention for Parkinson's Disease, lead by Dr. Ergun Uc (University of Iowa). Chicago, IL, December 6th.

Sparkling plasticity in the aging brain with physical activity. Invited talk at the Cognitive and Motor Neuroscience seminar series, Michigan State University, November 14th.

Investigations of exercise-induced plasticity in the aging brain with resting state fMRI. Invited presentation at satellite workshop entitled [*Interventions and Consciousness*](#), Hosted by Michelle Hampson and Susan Whitfield-Gabrieli, Boston, MA, September 14th.

Sparkling plasticity in the aging brain with physical activity. Invited talk for Division 40 Symposium at the American Psychological Association (APA) convention, Washington D.C., August 8th.

Sparkling plasticity in the aging brain with physical activity and exercise. Invited talk at seminar series for the Clinical division of Psychology at The University of Iowa. April 23rd.

2013

Exercise effects on functional brain networks: from months to minutes. Presented at brownbag seminar series for Cognitive, Developmental, and BCN divisions of Psychology at The University of Iowa. November 6th.

Sparkling plasticity in the aging brain with physical exercise. Invited guest speaker at Neuroscience Research Day, The University of Iowa. October 24th.

Resting State part 2: ICA-Cleaning and Advanced Methodology. Invited guest lecture and tutorial at the 2013 Summer BRAINS workshop at the University of Iowa. August 2nd.

Effects of physical exercise on the brain and cognition in elderly humans. Invited speaker for symposium presentation given at the American Association for Geriatric Psychiatry Annual Scientific Meeting, in Los Angeles, LA, March 14-17.

2012

The Relationship of Aerobic Fitness to Brain Network Architecture in Healthy Older Adults. Invited speaker for symposium presentation at The Gerontological Society of America's 65th Annual Scientific Meeting, in San Diego, CA from November 14-18.

The Relationship of Physical Activity and Aerobic Fitness to Brain Health in Late Life. Presentation at the Aging Mind and Brain Monthly Seminar, October 18th.

Maximizing brain plasticity with physical exercise. Invited speaker for symposium presentation at The 7th international sport sciences symposium of "Active Life," in Tokyo on September 3rd.

Functional connectivity analysis of resting state fMRI data: Seed voxel approach. Invited guest lecture and tutorial at the 2012 Summer BRAINS workshop at the University of Iowa. August 9th.

Maximizing brain plasticity with physical exercise and implications for TBI intervention. Invited presentation at The Sustained Cognitive Performance in the Warfighter Workshop, West Point, New York on July 28th.

Neuropathology and cognitive and behavioral sequelae of traumatic brain injury. Invited presentation at The Sustained Cognitive Performance in the Warfighter Workshop, West Point, New York on July 27th.

Brain and cognitive aging: a network science perspective. Invited presentation at the bi-annual Cognitive Aging Conference in Atlanta, Georgia, April 20th.

Selected conference abstracts (from Jan 2012-present)

†Graduate student first author from HBC lab, ††Undergraduate student first author from HBC lab

†Clark, R., Weng, T., Wharff, C., Reist, L., DuBose, L., Darling, W., Schmid, P., Sigurdsson, G., Magnotta, V.A., Pierce, G., Voss, M. W. (2017). Relationship of physical exercise and aerobic fitness with episodic associative learning and hippocampal volume in healthy older adults. Exercise and Brain Health Symposium at UC Irvine, to be presented on March 2nd.

†Clark, R., Freedberg, M., Hazeltine, E., **Voss, M.W.** (2016). Associative learning, recollection, and hippocampal volume in older adults. Poster presented at Cognitive Aging Conference in Atlanta, GA.

†Weng, T.B., Pierce, G.L., Darling, W.G., Falk, D., Magnotta, V.A., **Voss, M.W.** (2016). Toward a hedonic theory of exercise behaviors: acute exercise selectively increases the functional connectivity of reward and affective brain systems in older adults. Poster presented at annual Cognitive Neuroscience Society, New York, NY.

Sutterer, M.J., Bruss, J., **Voss, M.W.**, Tranel, D., Howard, M. (2016). Increases in intrinsic network connectivity following anterior temporal lobe resection: A pre-to-postoperative longitudinal study. Poster presented at annual Cognitive Neuroscience Society, New York, NY.

†Clark, R., Tahan, A., Watson, P., Cohen, N., Severson, J., **Voss, M.W.** (2015). Spatial reconstruction and spatial pattern separation in young and older adults. Poster presentation at Society for Neuroscience, Chicago, IL.

††Sloan, M., Clark, R., **Voss, M.W.** (2015) Relationship between hippocampal volume, spatial memory, and cardiorespiratory fitness in older adults. Poster presentation at the Medical Student Research Day, Iowa City, IA, September 2015. Awarded "Outstanding Presentation in Clinical Neuroscience Research"

DuBose, L.E., **Voss, M.W.**, Weng, T.B., Dubishar, K., Lane-Cordova, A., Swift, M., Sigurdsson, G., Schmid, P., Pierce, G.L. (2015). Lower carotid compliance and greater carotid β -stiffness index is associated with slower processing speed and reduced working memory performance in middle-aged/older healthy adults. Poster presentation at the North American Artery Conference in Chicago, IL.

†Weng, T.B., Guzmán-Vélez, E., Cooke, G.E., Herrel, S., Burzynska, A.Z., Wong, C.N., McAuley, E., Kramer, A.F., Tranel, D., **Voss, M.W.** (2015) Greater distribution of executive control networks supports cognitive reserve in bilingual older adults. Poster Presentation at the Society for Neuroscience Meeting in Chicago, IL.

†Clark, R., Tahan, A., Watson, P., Cohen, N., Severson, J., **Voss, M.W.** (2015) Spatial reconstruction and spatial pattern separation in young and older adults. Poster presentation at Society for Neuroscience, Chicago, IL, October 2015.

†Rigon, A., **Voss, M.W.**, Turkstra, L., Mutlu, B., Duff, M.C. (2015) Do different brain systems support the ability to recognize positive and negative emotions following traumatic brain injury? Poster presented for the annual Society for Neuroscience meeting, Chicago, IL.

†Rigon, A., Gallagher, N.T., Swift, M.M., Duff, M.C., **Voss, M.W.** (2015) Distinct patterns of interactions between resting state networks are related to different facets of Theory of Mind. Poster presented for the annual Society for Neuroscience meeting, Chicago, IL.

†Clark, R., Tahan, A., Watson, P., Cohen, N., Severson, J., **Voss, M.W.** (2015) Spatial reconstruction and spatial pattern separation in young and older adults. Poster presentation at University of Iowa Neuroscience Research Day, October 2015.

†Rigon, A., Swift, M.M., **Voss, M.W.**, Duff, M.C. (2015) On Hemingway and the brain: Combining literature and neuroimaging to uncover the neural correlates of mental state reasoning. Poster presented at the annual Examined Life Conference, Iowa City, IA.

††Gallagher, N.T., Rigon, A., Swift, M.M., **Voss, M.W.**, Duff, M.C. (2015) Exploring the Neural Correlates of Theory of Mind. Poster presented at the Spring Undergraduate Research Festival of the University of Iowa, Iowa City, IA.

††Lietsch, L., Clark, R., **Voss, M.W.** (2015). Relationship between hippocampal volume and associative learning ability in older adults. Poster presentation at the Summer Undergraduate Research Festival, Iowa City, IA, July 2015.

††Al-Momani, SI, Weng, TB, **Voss, MW.** (2015). Acute effects of moderate intensity aerobic exercise on brain function during a working memory task. Poster Presentation at the Spring Undergraduate Research Festival in Iowa City, IA.

Sutterer, M.J., Warren, D.E., Bruss, J., Jones, A., Abel, T., Kawasaki, H., **Voss, M. W.**, Howard, M.A., & Tranel, D. (2015) Functional connectivity of the surgically disconnected temporal pole. Poster session presented at the meeting of the Organization for Human Brain Mapping, Honolulu, HI.

- †Rigon, A., **Voss, M.W.**, Duff, M.C. (2015) Structural and Functional Neural Correlates of Communication Impairment in Chronic Traumatic Brain Injury. Poster presented at annual Cognitive Neuroscience Society, San Francisco, CA.
- Sutterer, M.J., Slade, T., Bruss, J., **Voss, M.W.**, Bechara, A., & Tranel, D. (2015). Functional connectivity of brain lesions helps explain individual differences in complex decision-making. Poster session presented at the meeting of the Cognitive Neuroscience Society in San Francisco, CA.
- †Clark, R., Chaddock-Heyman, L., Hillman, C.H., Kramer, A., **Voss, M.W.** (2015). Differential relationships of fitness, executive function and brain function in male and female preadolescents. Poster presentation at the Cognitive Neuroscience Society annual meeting, San Francisco, CA, April 2015.
- †Weng, T.B., Wong, C.N., Burzynska, A.Z., Chaddock-Heyman, L., Monti, J., McAuley, E., Kramer, AF, **Voss, M.W.** (2015). Age-related de-differentiation of functional brain networks at rest is associated with stability of executive functions. Poster Presentation at the Cognitive Neuroscience Society Meeting in San Francisco, CA.
- ††Tehan, A., Clark, R., **Voss, M.W.** (2014). Assessment of Test-Retest Reliability and Age Differences of A Spatial Pattern Separation Task in Young and Older Adults. Poster presentation at the Undergraduate Research Festival, Iowa City, IA, December 2014.
- Sutterer, M.J., **Voss, M.W.**, Bruss, J., Slade, T., Denberg, N.L., Bechara, A., Tranel, D. (2014) Changes in functional connectivity after ventromedial prefrontal cortex damage relate to emotion-based decision-making behavior. Society for Neuroscience, Washington, D.C., November, 2014.
- †Rigon, A, Duff, MC, **Voss, MW.** (2014) Moment to moment BOLD signal variability in resting state networks correlates with cognitive performance in a traumatic brain injury sample. Society for Neuroscience, Washington, D.C., November, 2014
- Wijekumar, S., **Voss, M.W.**, Magnotta, V.A., Buss, A.T., Hazeltine, R.E., Spencer, J.P. (2014) Parametric manipulations in Simon and Go/NoGo reveal specificity of neural mechanisms of response selection and inhibition. Society for Neuroscience, Washington, D.C., November, 2014.
- †Rigon, A, Duff, MC, **Voss, MW.** (2014) Does traumatic brain injury lead to a functionally split brain? A study of resting state networks following traumatic brain injury. Fourth biennial Resting State Conference, Boston, MA, September, 2014
- †Weng, T.B., Pierce, G.L., Darling, W., Falk, D., Magnotta, V., **Voss, M.W.** (2014) Acute increases in functional connectivity following physical exercise are associated with cerebrovascular reactivity. Poster Presentation at the Fourth Biennial Conference on Resting State/Brain Connectivity, Boston, MA, September, 2014.
- DuBose, L.E., Weng, T.B., Dubishar, K., Mani, M., **Voss, M.W.**, Pierce, G.L. (2014) Higher Aortic Stiffness and Carotid Pulse Pressure are Selectively Associated with Lower White Matter Integrity in the Frontal and Parietal Cortex in Older Healthy Adults. Poster presentation at the North American Artery Conference, Chicago, IL, September, 2014.

†Weng, T.B., Wong, C.N., Burzynska, A., Chaddock-Heyman, L., Cooke, G., Monti, J., McAuley, E., Kramer, A.F., **Voss, M.W.** (2014). Age-related differences in executive function are associated with the differentiation of functional brain networks at rest. Cognitive Aging Conference in Atlanta, GA.

†Clark, R., Freedberg, M., Hazeltine, E., **Voss, M.W.** (2014). Introducing novel tasks for comparing age differences in learning systems. Cognitive Aging Conference in Atlanta, GA.

Voss, M.W., Clark, R., Freedberg, M., Hazeltine, E. (2014). Age-related differences in learning systems: does the hippocampus compensate during skill learning in older adults? Cognitive Aging Conference in Atlanta, GA.

†Weng, T.B., Pierce, G.L., Darling, W., Magnotta, V.A., **Voss, M.W.** (2014). The acute effects of exercise on large-scale networks of the human aging brain: insights into the protective role of exercise. Cognitive Neuroscience Society Conference in Boston, MA.

Sutterer, M.J., **Voss, M.W.**, Bruss, J., Tranel, D., Howard, M. (2014). Selective Increase in Salience Network Connectivity Acutely Following Anterior Temporal Lobe Resection. Cognitive Neuroscience Society Conference in Boston, MA.

Moreno, G., Bruss, J., Halfmann, K., Sutterer, M., **Voss, M.**, Denberg, N. (2014). Increased diurnal cortisol is related to decreased functional connectivity between the amygdala and the prefrontal cortex among healthy older adults. Cognitive Neuroscience Society Conference in Boston, MA.

Belfi, A.M., **Voss, M.W.**, Mani, M., Wong, C.N., Cooke, G., Sutterer, M.J., Clark, R., Tranel, D., McAuley, E., Kramer, A.F. (2013). Age-related laterality and sub-system differences in the intrinsic functional connectivity of the default mode network. Cognitive Neuroscience Society conference in San Francisco, CA.

Sutterer, M.J., **Voss, M.W.**, Mani, M., Wong, C.N., Cooke, G., Sutterer, M.J., Weng, T., Tranel, D., McAuley, E., Kramer, A.F. (2013). Age-related differences in anterior cingulate-insula connectivity are associated with the fronto-executive but not emotional saliency network. Cognitive Neuroscience Society conference in San Francisco, CA.

SUPPORT (current or first year direct costs and percent effort shown)**Active extramural research support**

- R21 (Pontifex) 06/01/2014-6/31/2017 .82 calendar
NIH/NICHD \$12,883 (sub-award only)
Physical-Activity Induced Transient Changes in Hemodynamics (PITCH)
The major goal of this project is to test competing hypotheses about how exercise enhances brain function in preadolescent children. Aims examine the effect of exercise on acute changes in cerebral blood flow and functional neural synchrony, and the extent to which these account for acute changes in executive function performance.
Role: Co-Investigator, UIowa sub-award PI
Additional Co-I's: Jodene Fine (MSU), David Zhu (MSU)
- SBIR Phase II (Van Vleet) 12/01/2014-11/30/2018 1.35 calendar
NIH \$209,646 (sub-award only)
Amplified Attention Training (AAT) for Age-related Cognitive Decline
The goal of this multi-site RCT is to examine the effect of precursor attention training on boosting outcomes from a cognitive training program in older adults.
Role: Co-Investigator, UIowa sub-award (UIowa PI: Voss, Co-Investigator: Wolinsky)
Other research sites: Boston University/Harvard (Degutis), Brain Plasticity Institute (VanVleet)
- SBIR Phase I (Lee) 01/01/2015-12/31/2017 1.35 calendar
NIH \$169,695 (sub-award only)
Plasticity-based Adaptive Cognitive Remediation for Alzheimer's Disease (PACR-AD)
The goal of this project is to determine feasibility of an online platform for delivering a novel game-based cognitive training program with a motivational (coach) framework, and to establish preliminary data on the transfer of training to untrained cognitive abilities and the neural mechanisms of training responsiveness and transfer of training.
Role: Co-Investigator, UIowa sub-award (UIowa PI: Voss, Co-Investigator: Wolinsky)
- R21 (Voss) 02/01/2015-02/30/2017 1.50 calendar
NIH/NIA \$150,000
Bridging acute and long-term exercise effects on brain function in older adults
The goal of this project is to determine the effects of acute exercise on functional brain networks in healthy older adults, and the extent to which the acute response is associated with the response from long-term exercise training an aerobic training group compared to a non-aerobic training group.
Additional Co-I's: Gary Pierce, Vincent Magnotta, Warren Darling (all UIowa)
- R21 (Magnotta) 09/01/2015-08/31/2017 .6 calendar
NIH/NINDS
Exercise Intervention for Slowing HD Progression
The goal of this study is to obtain preliminary data on the effects of exercise training on Huntington's Disease progression as measured by quantitative MR imaging and resting state functional connectivity of striatocortical networks.
Role: Co-Investigator
Additional Co-I's: John Wemmie, Jane Paulsen, Jeffrey Long (all UIowa)

Active intramural research support

AMBI Pilot grant (Voss) 01/2016-12/2017 .00 calendar
 The University of Iowa \$25,000

Probing the molecular mechanisms of individual differences in cognitive aging and protective factors with novel quantitative MR imaging

The objective of this pilot proposal is to address this need with an initial cross-sectional design that will enable us to determine the sensitivity of novel quantitative human neuroimaging scans to cognitive aging and potent modifiers of cognitive aging such as cardiovascular fitness.

Co-I's: Matthews Jacob, Vincent Magnotta (all UIowa)

Completed extramural research support

C4712 (Kramer) 05/16/2012 – 05/15/2016 .90 calendar
 Abbott Laboratories \$39,599 (sub-award only)

Synergistic Effects of Exercise and Nutrition on Cognition & Brain Health of Older Adults: A Randomized Controlled Trial

This project examines the interactions between nutritional supplementation and aerobic exercise training on cognitive and brain aging in healthy older adults.

Role: Co-Investigator, UIowa sub-award PI

Completed intramural research support

Biological Sciences Funding Program (Voss) 06/01/2013-06/01/2014 .00 calendar
 Office of the Vice President for Research \$25,000

The University of Iowa

Sparking the plastic brain: Effects of aerobic exercise on brain function

This project examines the effects of acute exercise on hippocampal connectivity with the Default Mode Network and memory performance. The goal is to collect feasibility data for this research project.

Pending extramural research support

R01 (Voss) 04/01/2017-3/31/22 3.0 calendar
 NIH/NIA

Exercise to improve hippocampal connectivity and learning in older adults

Description: The goal of this project is to determine the effects of acute and long-term exercise on hippocampal-cortical connectivity and learning, and to determine the mechanistic importance of cardiorespiratory fitness in the protective effects of exercise on the aging brain.

Status: Recommended for funding

Additional Co-I's: Gary Pierce (HHP), Vincent Magnotta (Radiology), Eliot Hazeltine (PBS), Gardar Sigurdsson (Internal Medicine), Jeffrey Long (Psychiatry), James Mills (Psychiatry) (all UIowa)

- R01 (Voss) 12/1/2017-11/30/22 2.4 calendar
NIH/NIA
Does a BREAK in training reveal brain aging?
Description: The proposed research seeks to use a detraining approach to test the mechanistic role of cardiorespiratory fitness in the protective effects of physical exercise on brain and cognitive aging.
Status: submitted for review
Additional Co-I's: Gary Pierce (HHP), Vincent Magnotta (Radiology), Eliot Hazeltine (PBS), Gardar Sigurdsson (Internal Medicine), Jeffrey Long (Psychiatry), James Mills (Psychiatry) (all UIowa)
- SBIR Phase II (Lee) 07/01/2017-06/30/2022 .90 calendar
NIH/NIA
PACR-AD Phase II: Plasticity-based Adaptive Cognitive Remediation for Alzheimer's Disease.
The goal of this multi-site RCT is to extend testing of an online platform for delivering a novel game-based cognitive training program with a motivational (coach) framework, and to more definitively test the mechanisms of transfer of training to untrained cognitive abilities.
Status: under council review
Role: Co-Investigator, UIowa sub-award and UIowa PI with Co-Investigator Eric Foster (Biostatistics)
- R01 (Magnotta) 09/01/17-08/31/19 .90 calendar
NIH/NINDS
Cerebellar Metabolism, Neural Circuits, and Symptoms in Bipolar Disorder
Description: The goal of this project is to understand the role cerebellar activity plays in regulating mood in bipolar disorder by using a cross-sectional design and recruiting bipolar disorder subjects across the mood spectrum, as well as matched controls.
Role: Co-Investigator
Status: second submission received 19%, awaiting final decision following council

SERVICE

Departmental

- Chair of Cognitive Neuroscience curriculum committee, Fall 2012- Spring 2015
- Faculty Advisory Committee, Fall 2013- Spring 2016
- Chair of BBIP T32 Curriculum and Seminar Committee, Fall 2014-Present
- BBIP T32 Admissions Committee, Fall 2014-Present
- BBIP T32 Executive Committee, Fall 2015-Present

University

- Aging Mind and Brain Initiative, Annual Symposium planning committee, Spring/Fall 2012
- Aging Mind and Brain Initiative, Executive committee, Fall 2012
- University of Iowa LEAP center courses
 - “Working Out Your Brain: Tips for Successful Aging by Staying Mentally Active” – July 2012
 - “Introduction to Brain Research, "Brain Mapping," and How it Relates to You!” – July 2013
- Chair of Interdisciplinary Neuroscience Graduate Program Seminar Committee, Fall 2014-Spring 2015
- Tenure track faculty search committees:
 - Cognitive Neuroscience faculty position, Department of Neurology and Aging Mind and Brain Initiative (AMBI), Status: Complete (not filled)
 - Neuroplasticity, Rehabilitation, and Movement Control faculty position, Department of Physical Therapy, Status: Complete
 - Joint Psychology/Neurology/AMBI faculty position, Status: Jan Wessel hired
- MRI Research Advisory Committee, Fall 2012-Present
 - Meets bi-weekly at UIHC to discuss proposed neuroimaging projects run at MRRF.
- Recreational Services Charter Committee Meeting, Fall 2016- Present

Profession

Journal editing

Guest editor for Research Topic in Frontiers in Human Neuroscience, entitled *Effects of game and game-like training on neurocognitive plasticity*. Co-editors: Band, G., Slagter, H., Basak, C.

Journal reviewing

Selected ad hoc reviewing, if more than one per year, indicated in parentheses:

Brain Connectivity (2011, 2014)
Cerebral Cortex (2011, 2012, 2014)
Hippocampus (2014, 2015(2), 2016(2))
Human Brain Mapping (2014)
Journal of Neuroscience (2013, 2014, 2015)
Journal of Clinical and Experimental Neuropsychology (2012, 2013, 2014)
Journal of Gerontology: Medical Sciences (2013)
Medicine & Science in Sports and Exercise (2012(2), 2013, 2014, 2015)
Neurobiology of Aging (2009, 2012, 2014, 2016(3))
Neurobiology of Learning and Memory (2014)
NeuroImage (2009, 2013(3), 2014, 2015(3), 2016(3))
Neuroscience & Biobehavioral Reviews (2012, 2013)

Grant reviewing

- Invited review for NSF Cognitive Neuroscience Program, August 2012.
- Invited review for Netherlands Organisation for Health Research and Development, TOP programme. September 2012.
- Invited review for the Neurological Foundation of New Zealand, May 2013.
- Invited review for the Alzheimer's Society Research Programme, July 2014
- Invited review for the Innovational Research Incentives Scheme, Netherlands Organisation for Scientific Research, 2015
- NIH Neuroscience of Aging Review, Council NIA-N, SRO Jeannette Johnson, (February 2015; June 2015; October 2015; February 2016; June 2016; September 2016, February 2017)

Community Outreach

- Lemme Lego League aging primer, "Working Out Your Brain: Tips for Successful Aging by Staying Mentally Active" – October 2012. Advised on helpful tips for designing products to aid senior citizens.